# Left behind by Globalization: Why Christians Care About Educating Women

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**AUTHOR'S NOTE:** Early stages of this research were made possible by a gift from the PEW Foundation and originated during a faculty summer seminar in Christian Scholarship at Calvin College, entitled Globalization and Inequality. This paper was presented to CBFA in various forms as the empirical analysis emerged during the early 2000s. It was requested as an "encore paper" presentation to CBFA's silver anniversary conference in 2005. This is the paper's publication debut, which updates the paper by adding a greater theoretical context, current global issues, and a richer faith-based perspective. I could not be happier that its debut is in the first gender issue of the *JBIB*. In one of the many presentations of this work, someone asked me if the work was considered legitimate scholarship, since the subject of the analysis was women. As other articles in this edition of the *JBIB* will demonstrate, not only is scholarship about women legitimate, it is essential, as the corporate business community realizes the importance of female talent to meet the needs of the future, and addressing how the business community will encourage, utilize, and retain female talent is a source of serious contemporary discussion in the corporate arena. I thank many of my CBFA colleagues for supporting this work and providing reviews and great ideas to improve its clarity and contributions. All shortcomings remain entirely my own.

**ABSTRACT:** The purpose of this paper is to outline empirical research finding globalization to have a negative effect on the economic status of American women, place this in the context of economic research on globalization, and to discuss the policy implications from a Christian perspective — in particular, why Christian faculty should have a special concern about these trends. This research is currently relevant to the American debate on globalization and provides evidence to answer the question in the context of the Heckscher-Ohlin theory of international trade's impact on the distribution of incomes within a trading country, which asks whose incomes are hurt by trade.

#### INTRODUCTION

Free trade has been criticized by protesters, politicians, and even presidential candidates for its presumed effect on lost jobs and declining incomes. Ross Perot in his 1992 bid for the White House claimed to hear "a giant sucking sound" as American jobs were lost to Mexico due to the North American Free Trade Agreement (NAFTA) (Lawrence, 1996, p. 6). Recently, protesters in the Occupy Wall Street movement have associated economic instability and income inequality with globalization.

This paper is motivated by three concurrent economic trends that started increasing speed in the 1980s and the desire to find out if they might be related: (1) increasing free trade between countries, called globalization, (2) increasing income inequality in rich countries like the United States, and (3) the increasing feminization of poverty, or the large percentage of females and children falling into poverty in the United States. For a Christian economist, these trends are of particular concern due to the belief that God calls us to care about those that might be hurt by economic forces.

At the same time the debate is raging about what factors are responsible for larger income inequality, there is a growing concern about gender equity issues from academic economists and world organizations alike, who believe ethics and justice compel action and solutions for the world's women.<sup>1</sup> In his article on teaching the ethical foundations of economics, Jonathan B. Wight (2003) quotes economic thought historian R.D. Collison Black, who says that Adam

Smith's economics is a "system of thought which [places] economic problems firmly in the context of ethics... informed throughout by a concept of justice" (p. B7)

The importance of research on women's economic status is affirmed by Robert Solow, who speaks about economic justice in an essay titled "How Race and Gender Issues Arise in Economics" when he says:

> Are questions about the economic status of women and minorities important? They certainly are if you are a woman or a member of a minority group. That covers a lot of people. Even if you are not, I should think that any decent and curious person would want to know the facts about group differences in economic outcomes and then understand why things happen as they do. There is something wrong with a society that punishes some people and rewards others just because they have personal characteristics for which they are not responsible and cannot control. (As cited in Feiner, 1994, p. 5) t the 1994 Interpretional Conference on Population

At the 1994 International Conference on Population and Development (ICPD) in Cairo, participants from 180 countries agreed on the principle "that advancing gender equality and equity and the empowerment of women, and the elimination of all kinds of violence against women, and ensuring women's ability to control their own fertility, are cornerstones of population and development-related programs" (Riley, 1997, p. 2) More recently, at the 2010 Millennium Development Goal (MDG) Summit, two of the eight goals — gender equality and women's empowerment — were mentioned as goals in their own right (World Development Report, 2012, p. 4). And in its main messages section, the World Development Report of 2012 said, "Gender equality...is also smart economics" (p. xx).

Feminist economists are opening the field of economics to issues of value, well-being, and power for women, and they call for mainstream economists to broaden their attention to issues of altruism, cooperation, and the redistribution of abundance.<sup>2</sup>

Much economic research has been undertaken to assess whether globalization has led to increasing inequality in the distribution of incomes and whether it has hurt individuals and households in poverty on a countrycomparison basis. But there is not wide research stratified by gender, particularly to assess the impact of globalization on women's economic status.<sup>3</sup> And the methods of studies used to determine the impact of globalization on poverty and inequality have not considered the impact of a globalization "exposure" component that has been disaggregated to the level of an individual household. Both of these gaps are ways in which this paper contributes to the existing research.

The data set constructed and analyzed for this paper is able to support one key research question: Does globalization hurt the economic position of American women? Specifically, over the early part of the time period identified that is of interest, 1981-1993, American female heads of households who work in industries that experience greater globalization are found to have lower incomes with which to meet their economic needs. Thus the link between increased globalization and declining economic status for individual households is established for an important group of American households — those headed by women.

The implications of this research on women are important for Christians as we are called to care about social and economic justice and minister to the hearts and souls, minds and bodies of men and women. If the economic forces of globalization, over which individual economic agents in the American economy have no control, do in fact dampen the economic status of women, there is reason to speak strongly in favor of policy intervention to correct this damaging impact.

This paper seeks to determine if American women are among the losers during a period of increased trade liberalization and then find policy solutions that are both equitable and efficient. In the context of a growing economic pie due to globalization, can a safety net be built which will catch those left behind without jeopardizing the growth itself? Can we provide assistance for those left behind without shrinking the size of the economic pie?

The conjecture proposed in this paper is that education offers an equitable and efficient solution, as it raises worker productivity, offers economic independence to the disenfranchised lower socioeconomic members of society, provides a safeguard against the costs of globalization, and invests in the economic future of the next generation by elevating the health and education of the children in these households.

The paper is organized into four sections. The first section describes current economic issues and outlines economic research on globalization, its benefits and costs, and why it is important. The second section discusses how globalization impacts American women by presenting the empirical work of the paper and interpreting the findings of the data analysis. The third section of the paper discusses policy implications, and the fourth section provides conclusions. Throughout each section, the call on Christians to care about economic opportunities and outcomes and think about ways to improve the economic well-being of women and children is emphasized.

## GLOBALIZATION: THE ISSUES FACING AMERICA

The economic forces of globalization are a critical feature of the current world economic climate. Ghose (2003) defines globalization as "a process of integration of national markets into a global market," including not only products, but factors of production as well–capital and labor (p. 5). In *Globaphobia*, Burtless, Lawrence, Litan and Shapiro (1998) define globalization as "the increasing economic linkage between the United States and other nations," or economic openness (p. 4). In this section, the economic theory, myths, and economic trends pertinent to American public discourse regarding globalization will be discussed and the true economic costs will be identified.

### **Economic Theory**

The orthodox position on free trade is one of the few sacred theories held almost universally by economists. It dates back to early economic philosophers, David Ricardo (1821) and Claude Frederic Bastiat (1845). David Ricardo theorized that even if one country is more efficient at producing everything, if each country specializes in the production of the good for which it has a *comparative advantage*, free trade between countries will increase world output, resulting in greater value for everyone (Krugman, Obstfeld, & Melitz, 2012, p. 26). Claude Frederic Bastiat was a French economist, whose satirical essay about unfair competition from the sun in light production and the need for protectionist policy to require the boarding up of all windows and doors to prevent unfair competition from sunlight for candle-makers illustrates his strong opinion about the merits of free trade (Baumol & Blinder, 2012, p. 482).

The theory of comparative advantage is tempered somewhat when the distribution of incomes within a trading country are taken into account. There are solid theoretical economic reasons, based on the Heckscher-Ohlin-Samuelson factor price equalization theory, to believe that if a country abundant in skilled labor, such as the United States, begins to trade freely with a country having plentiful unskilled labor, such as Mexico, that the wage rates of the two countries will converge, and so US labor markets will experience declining wage rates (Burtless, Lawrence, Litan and Shapiro, 1998, p. 61; Krugman, Obstfeld, & Melitz, 2012, p. 97-98). The Heckscher-Ohlin theory connects free trade to its impact on the distribution of incomes and acknowledges that some groups within the trading country may experience declining incomes, and that trade itself might be the cause.

A significant issue for compassionate Christians who care about both economic growth and economic justice is: How will a growing economic pie, growing *because of* globalization, be distributed? Burtless, Lawrence, Litan and Shapiro (1998) point out that "the whole point of engaging in trade is to shift resources — capital and labor — toward their most productive uses, a process that inevitably causes pain to those required to shift" (p. 9), and they also acknowledge that, while the benefits to Americans from globalization have been significant, there have been losers (pp. ix-x). Identifying particular groups that might lose from trade is a source of research by economists, which will be discussed in the context of observed economic trends following the next section about the myths of free trade.

The empirical work of this paper attempts to shed light on this question for American women, asking whether they are among those who bear the costs of globalization.

# Myths

There are common myths (misconceptions) articulated in the news media and in public debates about globalization. One is that countries compete with one another like businesses do for market share, in a zero sum game leading to winners and losers. Another is that high productivity is important because it increases America's competitive edge in the global economy. Economic analysis can provide a fair assessment of the real costs and benefits of globalization.

In *Pop Internationalism*, Paul Krugman (1997) dispels the first myth:

One of the most popular, enduring misconceptions of practical men is that countries are in competition with each other in the same way that companies in the same business are in competition.... International trade is not about competition; it is about mutually beneficial exchange. Even more fundamentally, ...imports, not exports, are the purpose of trade. That is, what a country gains from trade is the ability to import things it wants....The benefits of trade do not depend on a country having an absolute advantage over its rivals. (p. 120, 125)

International trade enables the consumption of a bigger world economic pie due to the production of larger world output through the specialization of production by countries with a comparative advantage. Burtless, Lawrence, Litan and Shapiro (1998) stress the fact that open trade benefits consumers and that "lowering barriers to foreign goods delivers the equivalent of a tax cut

to American consumers, while encouraging U.S. firms to innovate. The net result is higher living standards for Americans at home" (pp. 8-9).

Krugman (1997) responds to the second myth by pointing out that "...high productivity is beneficial, not because it helps a country to compete with other countries, but because it lets a country produce and therefore consume more" (p. 121).

Dispelling these myths helps Americans understand the true benefits of globalization. However, there are also real economic costs to open trade, primarily in potential income inequality, negative effects on the low-skilled labor market, and social disintegration. These will be introduced next in the context of economic trends and then summarized in a section outlining the true economic costs of trade.

# **Economic Trends**

Economists have observed slower wage growth and greater wage inequality since the 1980s, during a period of increased globalization. This growing wage inequality has occurred in the United States in virtually all Organisation for Economic Co-operation and Development (OECD) countries, and in many developing countries as well.<sup>4</sup> Economists have determined that the majority of this increasing wage inequality is due to new production technologies that require greater skills, and as a result, pay educated American workers more and uneducated workers less. However, economists have also found that to a lesser extent, trade has contributed to this growing income inequality (Krugman, Obstfeld & Melitz, 2012, pp. 92-96).

When research on trade's impact on inequality began, most economists believed that liberalized trade played a role in dampening the relative wages of lessskilled American workers, not in depressing average wages (Burtless, Lawrence, Litan, & Shapiro, 1998, p. 88). The role of trade was thought to be small because imports from developing economies make up only about two percent of combined Gross Domestic Product (GDP) from OECD countries. However, later research attributes a larger cost to trade. Wood (1997) blames about 30 percent of the damage to low-skilled workers on trade, which is notably larger than prior studies. Research by international trade experts, Dani Rodrik (1997) and Robert Lawrence (1996) agree that the costs are larger than previously thought. In his book Has Globalization Gone Too Far?, Rodrik points out that the impact of trade has been underestimated because import competition has driven out low-skilled intensive activities that would have been present in developed countries and induced labor saving technological

change. So, the technological changes that economists traditionally thought to cause the increase in the skill premium is itself in part due to trade (pp. 13-17). These economists find evidence to link globalization and higher rates of return to college education as developed countries that trade increasingly specialize in high technology and knowledge industries.

In addition, economists have found evidence that open trade has made the demand for labor more elastic. This means workers abroad can more easily be substituted for workers at home by companies who invest abroad, or import products (or parts) made by foreign workers (Rodrik, 1997, pp. 22-23).

# Costs of Trade

So the costs of trade on the US labor markets include both an inward shift of the demand for low-skilled labor and an increase in the elasticity of low-skilled labor. An inward shift occurs when a country trades with another country that is more abundant in low-skilled labor, such as the US and Mexico. An increase in elasticity occurs because low-skilled workers in the United Kingdom, Germany, or France are in competition with similar workers in the United States (Rodik, 1997, pp. 25-27). As Rodrik points out:

And while North-North trade may have little perceptible impact on the relative demand for unskilled labor, it certainly makes this demand more elastic in all countries involved.... That is, workers now find themselves in an environment in which they can be more easily "exchanged" for workers in other countries For those who lack the skills to make themselves hard to replace, the result is greater insecurity and a more precarious existence. (p. 26)

Rodrik also speaks of the social consequences of globalization–political backlash and social disintegration. A political backlash is likely to occur as public opinion embraces myths and seeks protectionism. Social disintegration may result as Americans split according to differential economic status, become disengaged in the civic process, and destabilization unravels the glue that holds American society together (pp. 69-70).

Current events in the news media illustrate the social consequences identified by Rodrik — in particular the Occupy Wall Street movement, identifying income inequality with lost economic opportunity for "the 99%," which has become affiliated with anti-globalization in many countries. Economic analysis by economist Joseph Stiglitz (2012) in his recent book, *The Price of Inequality*, identifies serious economic costs and social consequences



of income inequality for the United States. Stiglitz says:

We are paying a high price for our inequality — an economic system that is less stable and less efficient, with less growth, and a democracy that has been put into peril.... Our economic system is seen to fail for most citizens, and as our political system seems to be captured by moneyed interests, confidence in our democracy and in our market economy will erode along with our global influence. (p. xii)

Stiglitz goes on to say that the lack of opportunity culture we are experiencing may put our national identity into jeopardy. Still, he points out that globalization one perceived cause of income inequality — can be managed for good versus ill.

> The problem, however, is not that globalization is bad or wrong but that governments are managing it so poorly — largely for the benefit of special interests. The interconnectedness of peoples, countries, and economies around the globe is a development that can be used as effectively to promote prosperity as to spread greed and misery. The same is true for the market economy: the power of markets is enormous, but they have no inherent moral character. We have to decide how to manage them.... The message of Occupy Wall Street — and of so many other protesters around the world — is that markets once again must be tamed and tempered. The consequences of not doing so are serious: within a meaningful democracy, where the voices of ordinary citizens are heard, we cannot maintain an open and globalized market system, at least not in the form that we know it, if that system year after year makes those citizens worse-off. One or the other will have to give — either our politics or our economics. (Stiglitz, 2012, p. xiii)

The analysis by Stiglitz provides a perspective on the high stakes involved in the outcomes of globalization through its impact on income inequality and its resulting social consequences. In particular, it elevates the importance of policy intervention from a Christian perspective, which deeply values the moral judgments made in managing markets. How can our society provide better economic opportunity for all citizens? This question will be addressed in the third section of the paper outlining policy recommendations in keeping with economic justice, after the next section explains the empirical results of the research on American women.

# THE IMPACT OF GLOBALIZATION ON AMERICAN WOMEN

This section presents the empirical research of this paper, which extends the economic analysis to the impact of globalization on American women. It begins by presenting data trends in the economic status of American women. It then outlines the empirical work and its interpretation in the context of the costs of globalization.

The empirical research examines changes in the economic status of American women in a period of increasing globalization. The empirical work contributes to research in the field by constructing a database linking Panel Study of Income Dynamics (PSID) and National Bureau of Economic Research (NBER) data, and by entering a measure of global exposure at the level of an individual household. After controlling for personal characteristics, work behavior, education, family characteristics, macroeconomic factors, industry effects, and individual effects, American female heads of households who work in industries with greater global activity (specifically higher exports, higher bilateral trade, or higher trade balances) are found to have a significantly smaller income with which to meet their economic needs.<sup>5</sup>

#### **Economic Trends**

American women and children are among the poorest groups of Americans. The proportion of poor American households headed by women has more than doubled since 1960, from 23.7 percent in 1960, to 51.5 percent in 2011. A female householder is defined by the US Census Bureau as a female head of household, with primary economic responsibility for the family and with no husband present. Among all families, the percent of female householders in poverty was 31.2 percent in 2011, compared to 16.1 percent for male householders and 11.8 percent of all families. But for families with children, 40.9 percent of female householders with children fell into poverty in 2011, compared to 24.9 percent of male householders with children. Evidence shows that an average woman's economic status declines following divorce, and children add a significant financial burden to households headed by women,<sup>6</sup> as illustrated in the data by comparing all families to families with children.

The economic status of women and children compared to males and family units with a married couple reveals persistence in the feminization of poverty in America. It is this concern, in part, that motivates the research of this paper and whether the economic status of American women is impacted by a period of increasing globalization.

#### **Empirical Research**

For the empirical research, a database is constructed that merges Panel Study of Income Dynamics (PSID) households and National Bureau of Economic Research (NBER) industry import-export data, and which includes a measure of global exposure entered on an individual household basis. Pooled time-series cross-sectional data over the period 1981-1993 is used to explain US femaleheaded households' income-needs ratios, both on a preand post-transfer income basis. A neoclassical model of income determination is estimated, including personal characteristics, work behavior, education, family characteristics, macroeconomic factors, industry effects, and individual effects as explanatory factors. Several measures of global exposure are constructed for individual households based on industry of employment (imports, exports, intra-industry trade, trade balance) and included as the explanatory factor of particular interest in the model.

Using an Ordinary Least Squares regression model with industry and individual fixed-effects, this research finds evidence that American female heads of households who work in globally exposed industries have significantly lower income-needs ratios. Thus, this paper provides evidence to support findings by economists who have argued that trade has indeed hurt workers in industrialized nations. Specifically, this paper finds evidence that American women's economic status has been dampened by the globalization of the world economy.

*Model.* The model used in the empirical analysis is neoclassical economic theory, where income depends on the factors an individual possesses, and the relative pay-

ments those factors receive in the marketplace. Factor prices are determined by the interaction between supply and demand. Wages are determined by both the supply and the demand for labor. The individuals who receive very low income, or who are considered to be in poverty, would therefore possess labor for which there is little demand, or labor that is in abundant supply, or both.

In the neoclassical economic model, the demand for labor by employers depends upon the productivity of that labor. Thus, education and experience, which increase the productivity of labor, are expected to increase the demand for labor and have a positive influence on wages. In feminist economic literature, women's wages are also determined by cultural norms and expectations, and the wages do not necessarily perfectly represent their productivity. Some jobs may be relegated to lower wages because those jobs are held by women (Barker & Feiner, 2004, pp. 56-74). So it is also possible that personal characteristics influence an employer's demand for labor. This would be true if there is discrimination, or if employers use personal characteristics in hiring decisions as a substitute for imperfect information. Therefore, age, sex and race are expected to influence the demand side.

Macroeconomic fluctuations and the make-up of the output of the economy (manufacturing vs. service, high tech vs. low tech) will also influence the demand for labor. Globalization is expected to have an impact on the make-up of the macroeconomy and the demand for labor. Whether an industry is import or export intensive will impact its demand for labor and the type of labor required — skilled vs. unskilled. And, globalization is expected to positively

	All Families			Families with Children		Poor Families	Children
Year	Percent Female House- holders in Poverty	Percent Male House- holders in Poverty	Percent Families in Poverty	Percent Female House- holders in Poverty	Percent Male House- holders in Poverty	Percent Poor Families with Female Householder	Percent Children in Poverty (under age 18)
2011	31.2	16.1	11.8	40.9	24.9	51.5	21.9
2010	31.7	15.8	11.8	40.9	24.1	51.4	22.0
2000	25.4	11.3	8.7	33.0	15.3	51.2	14.8
1990	33.4	12.0	10.7	44.5	18.8	53.1	18.9
1980	32.7	11.0	10.3	42.9	18.0	47.8	16.5
1970	32.5	NA	10.1	43.8	NA	37.1	14.8
1960	42.4	NA	18.1	56.3	NA	23.7	NA

Selected Poverty Statistics for Women and Children

impact the overall demand for labor in the long run as the value of total output rises due to comparative advantage.

The supply of labor is influenced by the relative abundance of certain types of labor. Unskilled labor is in relatively abundant supply, while highly skilled labor is relatively scarce. Personal choice or family circumstances may also affect the supply of labor. For example, the need to provide childcare, elder care or care for sick family members provides incentives for individuals to reduce work hours. Different eras of life may influence labor supply and psychological factors may influence labor supply decisions. So-called "discouraged workers" leave the labor force for no apparent economic reason. Or individuals raised or mentored with a strong work ethic or with religious commitment may exhibit different labor supply behavior.

The neoclassical income model can be translated into an empirical representation through regression analysis. The empirical model measures the impact of explanatory factors (X variables) on a dependent variable (Y), measured as an income-needs ratio for female-headed households.<sup>7</sup> See Figure 1.

The dependent variable, measured by the female head's household income divided by her household's needs, represents economic status, since it measures how well the family income meets its needs. The income in the income-needs ratio includes income from all family members, and the model will be tested using both pre-transfer and post-transfer income. Assessing both pre-transfer and post-transfer income-needs ratios is relevant because pre-transfer represents economic status as determined by the free market while post-transfer represents economic status after policy intervention. In addition, comparing equations for pre-transfer and post-transfer income-needs ratios may lead to new information about the controversial Rodrik effects: that social safety nets should compensate for external shocks, including exposure to globalization, but that such compensation may be losing ground for the very same reasons (Rodrik, 1997, pp. 78-79).

Of particular interest for this paper will be factor X5it measuring the impact of globalization on female-headed households. The variables within each vector in the empirical model above (labor productivity, personal and family characteristics, parents' characteristics, macroeconomic factors, and global exposure) will provide possible measures of those factors, but all of these variables will not necessarily be entered simultaneously in the model due to potential multicollinearity or correlation between individual variables within the vectors.

*Data.* Data from the Panel Study of Income Dynamics (PSID) is used to measure the factors identi-

#### Figure 1: Empirical Model

$Y_{it} = fs($	) + $\beta_1 X_{1it}$ + $\beta_2 X_{2it}$ + $\beta_3 X_{3it}$ + $\beta_4 X_{4it}$ + $\beta_5 X_{5it}$ + $U_{it}$
where	Y <sub>it</sub> = income-needs ratio of female-headed house- hold i in year t
	X <sub>1it</sub> = vector of labor productivity characteristics X <sub>11it</sub> = education of female-head, household i
	X <sub>12it</sub> = work experience of female-head, house- hold i in year t
	X <sub>2it</sub> = vector of personal and family characteristics
	X <sub>21it</sub> = ethnicity of female head, household i in year t
	X <sub>22it</sub> = number of children, household i in year t
	$X_{3it}$ = vector of head's parents' characteristics
	$X_{31it}$ = education of female head's father,
	household i in year t
	X <sub>32it</sub> = education of female head's mother,
	household i in year t
	$X_{33it}$ = parents of female head were poor,
	household i in year t
	X <sub>4it</sub> = vector measuring macroeconomic factors
	X <sub>41it</sub> = unemployment rate, female head's
	county, household i in year t
	$X_{42it}$ = geographic mobility of female-head,
	household i in year t
	$X_{43it}$ = vector of year dummies (time trend)
	X <sub>5it</sub> = vector measuring impact of globalization on
	household i in year t
	X <sub>51it</sub> = share of industry shipments which are imported, for the industry in which the
	female head works
	$X_{52it}$ = share of industry shipments which are
	exported, for the industry in which the
	female head works
	$X_{53it}$ = intra-industry (bilateral) trade, for the
	industry in which the female head works
	X <sub>54it</sub> = trade balance, for the industry in which the female head works
0	

 $f_0 = constant term$ 

ß1, ß2, ß3, ß4, ß5, are vectors of parameters to be estimated

fied in the model. The PSID provides longitudinal data on about six to nine thousand households each year, from 1968 to the present. One of its relative strengths is its coverage of the lower portion of the income distribution, which enables researchers to study poverty, inequality, and the unskilled labor force. In addition, the longitudinal nature of the database provides an ability to analyze trends over time. The database collects approximate 1,200 items of information on each household every year. This research selects the households in the PSID sample that are headed by women for the analysis, which are approximately two to three thousand households each year. Each year in the PSID sample is called a "wave." For the 1992 wave, female heads comprise 2,929 out of 9,829 heads.

Data collected by the National Bureau of Economic Research (NBER) on US imports and exports is linked to an individual household in the PSID sample by the industry in which the head of the household works, according to the Standard Industrial Classification (SIC) code. The PSID provides the SIC code of employment for household heads in its sample, from 1981 to the present, and NBER provides data on imports, exports, and industry shipments for industries in the US, classified by SIC code.

Each female head is linked to her exposure to the global economy through the industry in which she works. Four measures of global exposure are used for female heads' industries of employment — her industry's world imports as a percent of total industry shipments, her industry's world exports as a percent of total industry shipments, the intra-industry (bilateral or overlapping) trade for her industry, and her industry's trade balance (imports minus exports) as a percent of industry shipments.

Ordinary Least Squares (OLS) estimation is used on a pooled cross-section time-series sample for 1981-1993, with a time trend, industry fixed effects, and individual fixed effects. Care is taken to reduce multicollinearity in the estimation, because if one or more of the explanatory (X) factors is highly correlated with another X factor, the relative impact of each factor is not distinguishable. In addition, time-series cross-section data analysis is likely to fail the classical assumptions of the econometric model, and formal testing in this case revealed the existence of heteroscedasticity (errors of unequal variance) and potential autocorrelation (disturbances that show patterns over time).8 Corrections were made by adding a time trend, including individual and fixed effects in the regression model and reporting heteroscedasticityconsistent standard errors.

*Methodological Contributions.* The unique contributions in the methodology of this study are: the crafting of a database merging NBER data and PSID data, the inclusion of a global exposure variable in a traditional income model at the level of an individual household, and constructing a dependent variable measured as income divided by needs to measure the economic status of female-headed households.

The estimates reported here represent a pooled sample from 1981-1993, extensive work variables, a time trend, and both industry and individual fixed effects.<sup>9</sup> Including industry and individual fixed effects in the model adjust for unique characteristics of each industry and individual, respectively, that lead to differential earnings potential.<sup>10</sup>

Appendix A provides definitions for the explanatory variables in the model, and Tables 1-4 display regression results for four different global exposure measures — imports, exports, bilateral trade, and trade balance, respectively. Each table contains six regressions, two dependent variables (post-transfer and pre-transfer income-needs ratios) for each of three different samples (all women, poor women, and non-poor women).

In each of the tables of results, explanatory variables (X) are listed in the first column, and each successive column displays coefficients, standard errors, and t-statistics for an individual regression. Column headings identify the sample (all women, poor women, or non-poor women) and the dependent variable. The first two regressions, labeled (1) and (2) are for all women, the second two, labeled (3) and (4), are for poor women, and the last two, labeled (5) and (6), are for non-poor women. The poor women regressions are estimated by selecting working poor women only. This is because global exposure is measured by linking female heads to the industry in which they are employed, and poor female heads are relatively unattached to the labor force.<sup>11</sup>

In the first regression in each pair of regressions [(1), (3) and (5)], the dependent variable is measured as post-transfer income divided by needs, and in the second regression in each pair [(2), (4) and (6)], the dependent variable is pre-transfer income divided by needs. Needs are determined according to the census bureau's official poverty thresholds, adjusted for family size.<sup>12</sup> Poor women are defined as women with income-needs ratios less than one, and non-poor women are those with income-needs ratios of one or greater.

*Results.* Since this paper attempts to discover whether global exposure has helped or hurt women, the variables numbered 15-18 in Tables 1-4 are of particular interest. Although a general discussion of other explanatory factors



is quite interesting, the detailed discussion of the empirical results will be restricted to the global exposure variable, and a brief summary of the other explanatory factors will be given. Findings for the all women and non-poor women groups will be reviewed first, then results for the working poor women will be discussed.

It is important to note that the impact of individual factors in this estimation is determined after adjustments have been made for all other factors, the time period (business cycle variations), individual industry characteristics of the 206 industries in the sample, and individual characteristics of each female head in the sample. Industry fixed-effects incorporate a unique dummy variable for each industry.13 Entering industry fixed-effects adjusts for the fact that each industry has unique qualities that generate differential income earnings potential. This improves the ability to distinguish the impact of global exposure from other work and industry variables in the analysis. Including individual fixed-effects in the model adjusts for unique qualities in individuals that lead to differential earnings power.14 In addition, results are obtained after adjusting for extensive work behavior variables: a work dummy variable that takes the value one if the female head is working and zero otherwise, a present experience variable that measures how long the female head has worked at her present job, and a years of experience variable that measures the female head's lifetime work experience.

For the all women and non-poor women groups, income-needs ratios are positively impacted by education, working, present experience, years of experience, job mobility, and being white. Factors dampening both pre-transfer and post-transfer income-needs ratios for the all women and non-poor women groups include having more children in the household, higher unemployment rates, and the time trend. The parental influence variables, dad's education, mom's education, and having poor parents while growing up, show mixed results for different groups.<sup>15</sup>

Focusing on the global exposure variables, labeled 15-18 in Tables 1-4, we find that three of the four global exposure measures (export share, intra-industry trade, and trade balance) significantly reduce the income-needs ratios for all women and non-poor women, and for one of the global exposure measures (import share), global exposure significantly improves the income-needs ratios.

To get a sense of the magnitude of the results, a oneunit increase in the ratio of trade balance to industry shipments leads to a lower income-needs ratio by about 2.0, or income that is lower by twice the needs. Or, if the trade balance to industry shipments ratio goes up by one unit, the income-needs ratio goes down by two units. The magnitude of this impact is quite deceiving until we consider what a one-unit increase in the trade balance to industry shipments ratio means. A 0.01 unit increase is much more realistic. A 0.01 unit increase in the trade balance to industry shipments ratio would mean a 0.02 unit decline in income-needs ratio, or income that is lower by 2 percent of household needs. Finally, as an example, for industry shipments of \$100,000 and family needs of \$20,000, a \$1,000 increase in net exports (trade balance) leads to an income-needs ratio that changes by 0.02, or from 1.5 to 1.48, for example, which would be a \$400 decline in income.

These results mean that women's economic status is dampened by global exposure, as it is measured in this research. The magnitude of this dampening effect varies depending on the measure of global exposure, but for example, women who work for industries with a 0.01 unit higher trade balance to industry shipments ratio have approximately a 0.02 unit lower income-needs ratio.

#### Discussion

Why do different measures of global exposure reveal opposite effects on women's economic status in the findings of this research, and do any general conclusions emerge? US import industries tend to employ low-skilled workers, while export industries employ primarily higherskilled workers. This is because in a global environment, industrialized countries specialize in high-technology industries, requiring higher-skilled labor, and export these products overseas, while importing low-technology products and parts requiring assembly by lower-skilled labor.

A plausible explanation for the opposite effects of the different measures of global exposure is that American women as a group fall into a relatively unskilled labor pool.<sup>16</sup> Therefore, the existence of import-intensive industries that employ unskilled workers will have a positive impact on women's incomes. Over time, globalization in general, and the presence of high technology industries that are export-intensive and employ highly-skilled labor, will dampen women's incomes if women are relatively unskilled.

Therefore, a general conclusion can be reached. This research provides evidence that American female heads of households have been hurt by globalization over the 1981-1993 period. This is after adjustments are made for education, work, personal characteristics, labor market variables, a time trend, and unique characteristics of each industry and each individual in the sample.

These conclusions are in conflict with classical trade theory (comparative advantage), which predicts that there

will be only winners from free trade, and no losers. According to general trade theory, exposure to trade should have an overall positive impact on regional economic activity and individual economic status. Exports are expected to have a positive impact on economic status.<sup>17</sup>

So why does this study reveal that exposure to global industries has a potentially damaging impact on American female heads? This research reveals evidence to support the Heckscher-Ohlin factor price equalization theory, a theory which considers the impact of trade on the distribution of incomes. American female heads of households respond to globalization as a pool of relatively unskilled labor. And with globalization has come the need for highly skilled workers in a specialized knowledge-based American economy. The workers who cannot bring knowledge needed by the new global economy to the workplace have been left behind. The results of this analysis provide evidence to substantiate this hypothesis.

Knowledge is the new basis for wealth. This has never before been true. In the past when capitalists talked about their wealth they were talking about their ownership of plant and equipment and natural resources. In the future when capitalists talk about their wealth they will be talking about their control of knowledge. (Thurow, 1999, p. xv)

American female heads of households are among those unskilled workers in developed countries that are hurt by the trend in world economic globalization, a trend that has led industrialized countries to specialize in high technology and information industries that require highly skilled labor.

What about poor female heads? Regressions in columns 3 and 4 of Tables 1-4 show results for poor female heads, but restrict the sample to women that are currently working. The reasons for selecting only working poor female heads was outlined earlier. Since global exposure is measured through female heads' industries of employment, and poor women have relatively little attachment to the labor force, it is difficult to assess the impact of globalization through their employment histories.<sup>18</sup> Global exposure does not play a significant role for this sample of working poor female heads, so no link can be made for poor female heads to increased globalization from this data. Other factors that are insignificant are: education,<sup>19</sup> whether the female head is white,<sup>20</sup> and parents' education.<sup>21</sup>

Work experience has a significant positive effect and higher unemployment rates have a significant negative impact. Other explanatory factors – job mobility, more children at home, growing up with poor parents, and the time trend – have a significant impact either on pretransfer or post-transfer income-needs ratios. One basic conclusion that can be drawn about working poor female heads is that work experience and macroeconomic factors (unemployment rates) play the greatest role in determining income-needs ratios for these women.

To determine the impact of globalization on poor women, one needs to know whether globalization dampens job formation and diminishes job opportunities for these women, or whether their lack of attachment to the labor force is in any way connected to globalization. That determination is beyond the scope of this research. However, it has been examined in the literature. Rodrik (1997) points out ways in which globalization affects labor markets. One is through its effect on the relative demands for skilled and unskilled workers, and another is through the ease with which substitutions can be made for low-skilled domestic workers, by other workers across national borders. Thus, prior research indicates the likelihood that poor women's job opportunities are dampened by globalization. This research, however, cannot provide additional evidence to support that hypothesis.

Since the developing countries tend to export goods that make relatively intensive use of low-skilled labor, trade with these countries displaces lowskilled, labor-intensive production in the United States and Western Europe and thereby reduces the demand for low-skilled labor there. In technical terms, trade results in an inward shift in the demand curve for low-skilled labor in these advanced countries.... Trade flattens the demand curve for labor at home and increases the elasticity of demand for labor — that is, trade increases the degree to which employers can react to changes in prevailing wages by outsourcing or investing abroad. Taken together, an inward shift and a flattening of the demand curves for low-skilled workers reduces average earnings for low-skilled workers while increasing both the dispersion of earnings among such workers and the volatility in wages and hours worked. This can explain why life has become more precarious, and insecurity greater, for vast segments of the working population. (Rodrik, 1997, pp. 12-13)

This research finds evidence that American women, specifically female heads of households, are among those left behind by globalization. As members of a group of relatively unskilled labor, female heads of households who work for global industries have lower economic status.

## Conclusions

Are American women left behind in a global economy? This research finds evidence that they are. With appropriate adjustments for personal and family characteristics, work behavior, industry effects and individual effects, this research finds that American female heads working in industries with greater global activity have lower economic status. But there is also a difference in the impact of globalization on women, depending on the measure of global exposure. General global activity, as measured by intra-industry trade and trade balance, hurts the economic status of American women. And women who work in export-intensive industries are hurt. But women who work in import-intensive industries see an improvement in their economic status. A plausible explanation for the difference in the impact of the measures is that women represent a pool of relatively unskilled labor, and thus are helped by global activities that provide better opportunities for lower skilled workers, and are hurt by globalization in general, which has increased job opportunities for skilled workers.<sup>22</sup>

Is there a link between the feminization of poverty and globalization? The question is really whether globalization has contributed to pushing women into poverty. This research can provide evidence that income-needs ratios are lower for women working in high trade industries or that women are poorer because of a global economy, but it cannot confirm a link between poverty and globalization or explain the economic trend observed that a higher percent of poor households are headed by women.

This research provides evidence that speaks to who is left behind by globalization, but it only addresses a change in (lowering of) incomes, not a change in relative incomes. So while it helps identify which group is affected negatively by globalization, it cannot confirm that groups other than women are gaining ground through higher incomes, which would be necessary to determine the relative position of women in the distribution of incomes, or whether globalization contributes to widening income inequality for women.<sup>23</sup>

The purpose of this work is also to illuminate the need for policy intervention so that women can cope with the costs of trade. Instead of transfers to poor female heads of households in exchange for unskilled work, it is more effective to develop the skills of American women, so that they can more fully engage in the kind of work required by America's role in the global economy. Christians should be concerned about the economic realities facing women and should initiate solutions to create self-sustaining family units. The next section will discuss policy implications.

#### THE VALUE OF EDUCATING WOMEN

The economic position of single mothers and their children remains precarious compared to other demographic groups in America. This paper provides evidence to support economic research identifying globalization as a contributing factor to the declining economic status for American female heads of households. It is also timely as the debate about the costs of globalization continues to be an important public dialogue.

The empirical findings of this paper support the hypothesis that globalization leaves low-skilled, immobile female heads behind. Female heads of households, as a pool of relatively unskilled labor, are negatively impacted by globalization after adjustments are made for their work behavior, work experience, education level, personal characteristics, macroeconomic forces, and individual industry characteristics. This means that the specific factor — globalization — has an impact on these female heads that is unique and devalues their work beyond other normal explanatory factors.

These empirical results support the existence of costs to globalization, specifically on the labor market for female heads whose income ability to meet their needs declines, and who find themselves with greater economic insecurity and a more precarious economic existence. This is because, as discussed earlier, there is less demand for these workers when the US trades with countries that have abundant low-skilled labor, such as Mexico, and the demand for these workers is more elastic in a global market where the US trades with other advanced countries, such as Canada or the United Kingdom, meaning their skills are easy to replace and they can be more easily substituted for workers in other countries.

The social consequences of leaving these women behind cannot be overemphasized. Rodrik (1997) mentions social disintegration — the detachment experienced by these disadvantaged individuals as they become disengaged in the civic process, which causes destabilization in American society (pp. 69-70). And Stiglitz (2012) warns of the high costs of economic inequality — less stability, less growth, and an economy that is captured by special interests instead of managed for the benefit of all Americans — which ultimately threatens American democracy (p. xii).

On a personal level, individuals who cannot meet basic survival needs cannot be productive members of society. Neither can they experience the quality of life that includes health care and education for themselves and their children and the freedom to pursue higher order priorities and fulfillment in living their lives. In the thinking of psychologist, A. H. Maslow, survival needs must be met before any kind of higher order needs can be realized, such as self-esteem and self-actualization (McKenzie & Tullock, 1989, pp. 43-44).<sup>24</sup>

**Policy Intervention.** The next question is: Can these costs be reduced by policy intervention? Economists must have concrete and pragmatic solutions to offer. Rodrik (1997) points out the complexities involved in tackling the costs of globalization with policy solutions, stating that "the broader challenge for the 21st century is to engineer a new balance between market and society, one that will continue to unleash the creative energies of private entrepreneurship without eroding the social basis of cooperation," and that "there is no magic formula that can be applied" (pp. 69-70). It is important to keep this in mind as this paper focuses on the solutions for labor, in particular.

Burtless, Lawrence, Litan and Shapiro (1998) recommend a more effective safety net that eases the transition of workers displaced by economic change, including global trade (pp. ix-x). Rodrik (1997) highlights the need for labor advocates to detach themselves from protectionist policies and shed misconceptions by recognizing that workers in developing economies not only bear lower wages but significantly lower productivity which makes them less a threat and the main competition to US labor comes from workers in other advanced countries. Labor advocates should work toward enhanced worker mobility and reduce risks faced by workers. The lack of mobility forces workers' interests to take second place in political discussions about attracting global capital. Social insurance that is refocused more directly on labor markets would reduce the risk (economic insecurities) workers face (pp. 75-79). Despite recent attempts to reduce waste and free-riding behavior in the American welfare system, which is all well and good, Rodrik says, "The need for social insurance does not decline but rather increases as global integration increases" (p. 79).

*The Common Good.* A common economic argument attributed to Arthur M. Okun, called "Okun's Law" is that if you begin more evenly slicing the economic pie through policy intervention, the pie will begin to shrink. In other words, imposing policy solutions that increase equity will cost our economy in efficiency or will reduce our country's economic growth.<sup>25</sup> But in the current climate of growing income disparity in America, Stiglitz (2012) points out that we can have both increas-

ing equity and efficiency. In fact, if the one percent who currently control economic decisions and gain advantage through rent-seeking begin to consider the needs of the 99 percent, it will benefit everyone, including the one percent (p. 297). Stiglitz explains that self-interest "properly understood" is different from self-interest. "It means appreciating that paying attention to everyone else's selfinterest—in other words, to the common welfare — is in fact a precondition for one's own ultimate well-being" (p. 288). This approach aligns with the aspirations of economic justice in keeping with a Christian perspective.

Stiglitz (2012) presents an agenda for reform in his book, The Price of Inequality. Key policies to reduce income inequality emphasize reducing the advantages held by the wealthy over the American economic and political systems. They include reducing rent-seeking and leveling the playing field, implementing tax reform, improving access to education, helping ordinary Americans save, establishing health care for all, restoring and maintaining full employment, adjusting social policies, and restoring sustainable and equitable growth (pp. 268-284). Stiglitz' reform agenda is purposeful to promote economic growth and well-being for all. With respect to globalization, Stiglitz says, "While globalization may benefit society as a whole, it has left many behind-not a surprise given that, to a large extent, globalization has been managed by corporate and other special interests for their benefit" (p. 277). He goes on to suggest ways to bring globalization back into balance for the good of society, including regulating cross-border capital flows, stopping the race to the bottom (cutting worker rights and conditions to bare bones in order to increase profit), and changing US tax law to reduce the incentives for US corporations to outsource jobs by taxing them on the full basis of their profits regardless of where production occurs, not just on profits generated at home (pp. 277-278).

*Impacts on Children.* Findings in this paper conclude that policies to support women can also increase both equity and efficiency. Research on many different groups of women around the world in the global economy discovers that women who receive increased incomes use it to significantly benefit the health and well being of their children. Mayra Buvinic (1997) cites research on households where women control resources in developing countries, as follows:

> In Brazil, for instance, economist Duncan Thomas has found that income in the hands of mothers has an effect on child health that is almost 20 times greater than income that is controlled by the father. Similar

results have been reported in Chile, Guatemala, Kenya and Malawi. The key appears to be that in households where women control resources, they prefer (whether for reasons of nature or nurture) to invest scarce resources in child well-being. In Jamaica, for instance, studies have found that female-headed households spend more on food and other familyoriented goods than male-headed households. (p. 47)

So, research needs to be done to confirm a similar result for American women. This fact for so many women around the world provides supporting evidence for the positive impact on society of providing assistance to the women who are left behind by global economic forces because providing an investment in these women will likely impact future generations.

> These differences in the way that men and women prefer to spend scarce resources in poor households suggest that the income that poor women earn can yield higher health or social benefits than that earned by men. They are a strong argument for the desirability of expanding poor women's economic opportunities. (Buvinic, 1997, p. 47)

*Summary: Education.* Policy solutions, therefore, should expand women's incomes. But even more importantly, policy solutions should expand women's economic opportunities. In a global economic environment where highly skilled labor is in demand, policy interventions must therefore increase women's skills, and so it follows that policy initiatives must contain an educational component. A serious investment in developing women's skills and expanding women's education must be made if these women are to become productive economic agents and self-sufficient members of the American workforce.

What type of education is needed in an advanced country in the global economy? For women to become sought-after members of the current American labor force, they will need either a college education or highly specialized training. As a member of the global economy, America specializes in knowledge and technology industries, and therefore strongly depends upon a labor force that can contribute to these high-skilled industries. A liberally educated person who can communicate effectively, think critically, understand the breadth of issues pertaining to relevant problems in our world, and have a deep knowledge in a subject area that is in demand by employers in the American economy will gain full entry into the labor force at an income level that enables her to earn living wages, sustain herself and her children, and attain economic independence.

Are other policy components important? Supportive elements that enable women to enroll and effectively succeed in a college level or specialized educational program, such as childcare, transportation, part-time employment, health care, and perhaps preparatory schooling, are also important policy measures.

In addition, there are many other broader policy components that are required to reduce the costs of globalization and balance the incentives to creatively pursue private enterprise in an open global setting, while caring for social cooperation and tending to those left behind. Economists, labor advocates, national government, and international institutions all have a role to play.<sup>26</sup> A strong macroeconomy and a workable social welfare system are critical.

The American welfare system has been reformed in an attempt to eliminate waste and free riders and improve work incentives. The Temporary Assistance to Needy Families (TANF) system requires that individuals work and limits assistance to 60 months (Blank, 1997, pp. 170-172). A more liberal allowance for educational preparation is needed for low-skilled workers, even encouragement and support to seek education, so that they can gain the type of education discussed above. Without a liberal education, it will be very difficult for low-income individuals to become productive members of the American workforce. Rodrik (1997) suggests, "Gearing social insurance more directly toward labor markets, without increasing the overall tax burden, would be one key step toward alleviating the insecurities associated with globalization" (p. 79).

The empirical results of this paper suggest some specific policy solutions. Given that American female heads are among the low-skilled labor force, and this empirical research finds their economic status as measured by income-needs ratios to be dampened by their exposure to global industries, these empirical results lead us to the critical need for intervention by way of education for those left behind by globalization.

Finally, it is important to recognize that despite the costs of trade, as identified in this paper, trade is not without serious benefits. This study supports a sentiment shared by economists and articulated by Gary Burtless, Lawrence, Litan and Shapiro (1998): "The most significant problem faced by underpaid workers in the United States is not foreign competition. It is the mismatch between the skills that employers increasingly demand and the skills that many young adults bring to the labor market" (p. 8).<sup>27</sup> As this research shows, American female

heads of households can now be recognized as a part of this mismatch. Rather than sucking sounds, we hear the hacking cough of women who are ill prepared to work in an America that specializes in industries requiring highly skilled labor and are being left farther and farther behind.

As Lester Thurow (1999) said in *Building Wealth: The New Rules for Individuals, Companies, and Nations in a Knowledge-Based Economy*, "The human beings who possess knowledge cannot be made into slaves" (p. xv).

This paper, through increased understanding of the impact of global capitalism and through careful empirical study, suggests policy alternatives that focus attention on the value of educating women in a global economic environment.

The changing nature of work wrought by globalization requires new and flexible skills of the American workforce. Just as women in developing countries must adapt their work to the significant changing forces of global capitalism, so must American women.<sup>28</sup> Policy initiatives in America, the richest country in the world, must improve economic opportunity and economic justice for all citizens, including those left behind by globalization.

Americans must commit to policies that promote both equity and efficiency by developing the human capital of female heads of households, as well as for others who are hurt by globalization. This labor-focused policy will impact the future of American women and their ability to become self-sufficient and take care of their children. It is not only smart, it is compassionate because it influences women's attainment of higher order needs and it impacts the well being of American children. In addition, policies to promote skill development and investment in human capital for those left behind by globalization will influence American growth and make America a more productive member of the global economy.

There seems to be wide agreement that empowering women is smart economics. But these policy implications are significant, especially for Christians because we are called to care about social and economic justice and human dignity. The next section addresses the most significant question of the paper: Why should Christians care about educating women?

## WHY SHOULD CHRISTIANS CARE?

This research finds evidence that women, specifically female heads of households, are among those who are left behind by globalization. As members of a group of relatively unskilled labor, female heads of households who work for global industries have lower economic status. This has particular relevance for Christian business faculty as we are in the teaching and shaping profession, and because we care about investing in human capital and providing interventions for those to whom economic forces have been unkind.

It is worth noting here that Christian and societal norms sometimes send a message with a double standard to moms regarding whether they "should" work. Married career moms are criticized for working, while single moms (receiving assistance) are criticized for not working. The role of the church community is to enter into mutual responsibility with those in need and to provide for the needs of members of the Christian body, without passing judgment on the reasons for the needs. This is not meant to diminish the expectation of personal responsibility, but it recognizes that God (not humans) is judge over all motivation and that a blending of accountability and mercy is needed to live faithfully in the Christian community. In addition, it recognizes that economic structural forces provide limitations to economic opportunity and personal responsibility.

In 2011, just under one-third of the female-headed households in America are under the poverty line. This jumps to 42 percent for female-headed families with children and about 22 percent of American children live in poverty in America. The proportion of poor households in America that are headed by women has increased from about a quarter in 1960 to 52 percent in 2011 (US Census).

Because of who they are, and what they believe, Christians think this is significant data, and an important concern for America. This research has discovered that globalization has contributed to the growing economic disadvantage of these female heads. Christians are compelled to care and to do something about it. Matthew 25:1-46 calls us to feed the hungry, give a drink to the thirsty, invite in the strangers, clothe the naked, care for the sick, and visit the prisoners. Doing these things is equivalent to offering these compassions to Christ himself. Not doing them brings the final judgment of eternal punishment by the Son of Man.

Christians should care about economic justice. "The God of the Bible desires justice and righteousness, and He orders us to act in just and righteous ways in our dealings with one another," which is stated boldly in Psalm 33:5: "The Lord loves righteousness and justice" (Mason, 1991, p. 87 and footnote 2, 318). Admonition to assist the poor and weaker members of our society is

a theme running throughout the Bible. Christians are to have a special concern for the poor and respond compassionately toward them. The community should bear the main responsibility for caring for its needy members, and the poor themselves must bear mutual responsibility, but the state should assist needy citizens when private charity is insufficient (Mason, 1991, pp. 88-89). Regarding the Biblical view of public welfare policy, Mason states:

So it was, then, that when poverty afflicted some members of society, all members were to bear responsibility. The primary means for assisting the poor were a compassionate loan (most likely for families with able bodied workers), gleanings (most likely for the more dependent members of society), and access to the fallow-year fields; each obligated the poor to work in some way. The non-poor members of society bore responsibility as well: to make the compassionate loan (zero interest, with the possibility that full repayment would not be forthcoming); to allow gleaners into their productive fields and the poor generally into fallow-year fields; and in a much longer-run sense, to make sure that each Israelite family had a secure productive base (the Jubilee provision of Lev. 25). The elders (the main form of primitive state in early Israelite communities) ideally would assure that all those activities transpired (a likely implication of passages such as Job 29:11-16 and Amos 2:6-7), and when God allowed a king to rule over Israel, he was charged with the same responsibility (see Ps. 72:1-4) (p. 89).

"For [John] Wesley, the only legitimate claim to the earth's resources is based not on industry or capital or enterprise or labor, but on the needs of our neighbor. This is the heart of evangelical economics" (Jennings, 1990, p. 117). The Biblical call to Christians is clear. We are called in Christian community to care for the needy, in covenant and mutual responsibility with them. As Christian educators, we have a key role to play in partnering with our Christian sisters who find themselves alone with children, financially insecure and in need of the knowledge and skills required by the global economy to become productive and self-sufficient.

Around the globe, women work more hours than men, and they are compensated less. In developing economies, the poorer the household, the longer women work (Buvinic, 1997, p. 42). Spiritual hope for women is in Christ. Economic hope for women around the globe is in literacy and education.<sup>29</sup> For women in advanced industrial economies, education at a level to provide them with highly skilled labor productivity is required. This will promote economic justice and enable these women and their children to have human dignity, which should be mutually sought by both these women and those who can provide the education.

Furthermore, when women have higher incomes and economic self-sufficiency, they use the increase to help their children. A quote by former World Bank vice president, Mieko Nishimizu, beautifully articulates this insight: "If you educate a boy you educate a human being. If you educate a girl, you educate generations" (as cited in Buvinic, 1997, p. 49).

The case has been made that it is critical to prepare women to be liberally educated members of the American workforce through policy intervention. As Christians, we understand that it is just as critical to prepare ethical individuals as well. A person who is liberally educated but also understands the ethical implications of life and work, and can live, behave, and solve problems in ethical ways with the broader society in mind, is even more valuable to her industry, to her society, and to her world. This is where Christian business faculty can have a key impact in shaping individuals not only to work effectively in our world but also to live ethically and make a meaningful contribution to our society and our world.

Christian faculty have a key role to play in the policy solution as we are entrusted with students who have Godgiven talents to play a critical role in teaching, shaping, and investing in their lives. Policy solutions that improve the education of women elevate the goal of economic justice as they are both efficient and compassionate. On a personal level, these solutions give attention to higher order needs beyond survival, to fulfillment in the workplace, and they impact future generations by providing a means for women to improve the health and education of their children. In addition, they impact society overall by prioritizing the needs of some of America's most disenfranchised members, which increases economic opportunity and slows the current growth in income inequality, thus reducing the costs of social disintegration.

Markets can be managed to reduce inequality and improve economic growth to benefit all, in keeping with Christian principles and social justice. Globalization can be effectively managed through policies that help women, which in turn will increase both equity and efficiency, for the benefit of all Americans. Table 1: Income-Needs Regressions for Female Heads, PSID 1981-1993<sup>1</sup> Model with Industry Fixed-Effects and Individual Fixed-Effects Using Measures of Global Exposure by Industry: Imports/Industry Shipments<sup>2</sup>

ALL WOMEN			POOR WOMEN <sup>3</sup>		NON-POOR WOMEN <sup>3</sup>	
Independent Variables	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer
	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs
	(1)	(2)	(3)	(4)	(5)	(6)
1. constant	6.172	4.143	1.008	0.544	7.062	7.121
	(0.154)	(0.152)	(0.190)	(0.163)	(0.193)	(0.266)
	[40.14]*	[27.22]*	[5.32]*	[3.33]*	[36.64]*	[26.73]*
2. high school	0.545	0.646	0.022	-0.017	0.618	0.739
	(0.082)	(0.081)	(0.054)	(0.044)	(0.104)	(0.151)
	[6.67]*	[8.00]*	[0.41]	[-0.39]	[5.94]*	[4.88]*
3. college	1.939	2.076	0.042	-0.078	1.975	2.053
	(0.154)	(0.152)	(0.141)	(0.131)	(0.181)	(0.229)
	[12.62]*	[13.65]*	[0.30]	[-0.59]	[10.88]*	[8.98]*
4. work	0.787 (0.130) [6.06]*	1.044 (0.129) [8.12]*	Not Entered <sup>3</sup>	Not Entered <sup>3</sup>	0.848 (0.156) [5.42]*	0.852 (0.195) [4.37]*
5. present experience	0.00781	0.00850	0.001	0.0004	0.00733	0.00683
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
	[15.48]*	[17.02]*	[2.20]**	[1.88]***	[12.55]*	[9.56]*
6. years experience	0.0179	0.0117	0.005	0.005	0.0164	0.0263
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.005)
	[6.89]*	[4.53]*	[2.23]**	[2.34]**	[5.31]*	[5.72]*
7. white	1.367	1.135	-0.049	-0.023	1.380	1.334
	(0.141)	(0.139)	(0.081)	(0.073)	(0.174)	(0.217)
	[9.72]*	[8.16]*	[-0.60]	[-0.31]	[7.95]*	[6.14]*
8. kids	-0.307	-0.299	-0.001	-0.040	-0.374	-0.487
	(0.027)	(0.026)	(0.016)	(0.014)	(0.036)	(0.051)
	[-11.51]*	[-11.31]*	[-0.06]	[-2.90]*	[-10.31]*	[-9.55]*
9. dad education	-0.0915	0.135	0.116	-0.065	-0.133	0.269
	(0.160)	(0.158)	(0.134)	(0.111)	(0.186)	(0.218)
	[-0.57]	[0.86]	[0.87]	[-0.59]	[-0.71]	[1.23]
10. mom education	-0.448	-0.0992	-0.128	-0.137	-0.423	-0.0171
	(0.170)	(0.168)	(0.131)	(0.120)	(0.198)	(0.239)
	[-2.64]*	[-0.59]	[-0.98]	[-1.14]	[-2.13]**	[-0.07]
11. poor parents	-0.116	-0.263	-0.068	-0.022	-0.0682	-0.370
	(0.081)	(0.080)	(0.048)	(0.043)	(0.102)	(0.135)
	[-1.44]****	[-3.29]*	[-1.42]****	[-0.53]	[-0.67]	[-2.73]*
12. unemployment	-0.230	-0.185	-0.018	-0.016	-0.281	-0.291
	(0.011)	(0.011)	(0.001)	(0.007)	(0.014)	(0.018)
	[-20.46]*	[-16.64]*	[-1.95]**	[-2.13]**	[-20.67]*	[-16.55]*
13. moved for job	0.566	0.552	-0.007	0.126	0.572	0.467
	(0.111)	(0.109)	(0.079)	(0.073)	(0.129)	(0.157)
	[5.13]*	[5.04]*	[-0.09]	[1.73]***	[4.42]*	[2.97]*
14. time trend	-0.316	-0.248	-0.014	-0.004	-0.335	-0.330
	(0.007)	(0.007)	(0.006)	(0.005)	(0.008)	(0.011)
	[-47.10]*	[-37.39]*	[-2.33]**	[-0.93]	[-39.50]*	[-29.51]*
15. imports	1.575	1.215	-0.841	-0.288	1.656	1.646
	(0.688)	(0.681)	(1.414)	(0.373)	(0.782)	(0.884)
	[2.29]**	[1.78]***	[-0.59]	[-0.77]	[2.12]**	[1.86]***
16. exports						
17. IIT						
R <sup>2</sup> within	0.1984	0.2039	0.2559	0.2230	0.1709	0.1423
R <sup>2</sup> between	0.3865	0.4017	0.0243	0.0077	0.2967	0.2436
R <sup>2</sup> overall	0.3258	0.3478	0.0676	0.0380	0.2545	0.2161
F statistic	21.85*	22.61*	1.13	1.38*	14.67*	8.45*
number of groups	2,749	2,749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

<sup>1</sup> Standard errors are in parentheses and t-statistics are in brackets.

<sup>2</sup> Variables are included for which data is available for all 13 years. See definitions in Appendix B.

<sup>3</sup> Poor women regressions include working female heads only (cases selected if work=1).
 \* Confidence 99% or greater. \*\* Confidence 95% or greater. \*\*\* Confidence 90% or greater.

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Table 2: Income-Needs Regressions for Female Heads, PSID 1981-1993<sup>1</sup> Model with Industry Fixed-Effects and Individual Fixed-EffectsUsing Measures of Global Exposure by Industry: Exports/Industry Shipments<sup>2</sup>

ALL WOMEN			POOR WOMEN <sup>3</sup>		NON-POOR WOMEN <sup>3</sup>	
Independent Variables	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer
1	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs
	(1)	(2)	(3)	(4)	(5)	(6)
1. constant	6.142	4.111	1.014	0.546	7.036	7.092
	(0.154)	(0.152)	(0.190)	(0.164)	(0.193)	(0.266)
	[39.92]*	[26.99]*	[5.34]*	[3.33]*	[36.50]*	[26.62]*
2. high school	0.536	0.637	0.021	-0.017	0.602	0.716
6	(0.082)	(0.081)	(0.054)	(0.044)	(0.104)	(0.152)
	[6.57]*	[7.89]*	[0.40]	[-0.39]	[5.79]*	[4.72]*
3. college	1.928	2.064	0.044	-0.077	1.954	2.023
	(0.154)	(0.152)	(0.141)	(0.131)	(0.181)	(0.229)
	[12.55]*	[13.57]*	[0.31]	[-0.59]	[10.77]*	[8.84]*
4. work	0.795	1.051	Not	Not	0.864	0.871
	(0.130)	(0.129)	Entered <sup>3</sup>	Entered <sup>3</sup>	(0.156)	(0.195)
	[6.12]*	[8.18]*			[5.52]*	[4.47]*
5. present experience	0.00784	0.00853	0.001	0.0004	0.00738	0.00685
1 1	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
	[15.55]*	[17.09]*	[2.20]**	[1.90]**	[12.63]*	[9.59]*
6. years experience	0.0179	0.0116	0.005	0.004	0.0162	0.0261
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.005)
	[6.87]*	[4.49]*	[2.26]**	[2.31]**	[5.27]*	[5.67]*
7. white	1.366	1.135	-0.047	-0.024	1.378	1.332
,	(0.141)	(0.139)	(0.081)	(0.073)	(0.174)	(0.217)
	[9.72]*	[8.16]*	[-0.58]	[-0.32]	[7.94]*	[6.13]*
8 kids	-0.307	-0.298	-0.001	-0.042	-0.373	-0.487
0. 1145	(0.027)	(0.026)	(0.016)	(0.014)	(0.036)	(0.051)
	[-11.51]*	[-11.30]*	[-0.07]	[-3.04]*	[-10.30]*	[-9.55]*
9. dad education	-0.0762	0.151	0.121	-0.068	-0.116	0.289
	(0.160)	(0.158)	(0.134)	(0.111)	(0.186)	(0.218)
	[-0.48]	[0.96]	[0.90]	[-0.61]	[-0.62]	[1.33]
10 mom education	-0.462	-0.114	-0.127	-0.138	-0.441	-0.0384
ro. mom cudeation	(0.170)	(0.168)	(0.131)	(0.120)	(0.198)	(0.239)
	[-2.72]*	[-0.68]	[-0.96]	[-1.15]	[-2.22]**	[-0.16]
11, poor parents	-0.111	-0.258	-0.068	-0.020	-0.060	-0.360
	(0.081)	(0.080)	(0.048)	(0.042)	(0.102)	(0.135)
	[-1.37]	[-3.23]*	[-1.42]****	[-0.47]	[-0.59]	[-2.66]*
12 unemployment	-0.229	-0.184	-0.019	-0.015	-0.280	-0.290
12. unempioyment	(0.011)	(0.011)	(0,009)	(0.007)	(0.014)	(0.018)
	[-20 37]*	[-16 52]*	[-2 05]**	[-2 11]**	[-20 59]*	[-16.49]*
13 moved for job	0.570	0.555	-0.007	0.127	0.577	0.475
	(0.110)	(0, 109)	(0.079)	(0.073)	(0, 129)	(0.157)
	[5 16]*	[5.07]*	[-0.09]	[1 74]***	[4 47]*	[3.02]*
14 time trend	-0.313	-0.245	-0.014	-0.004	-0.331	-0.325
	(0.007)	(0.007)	(0.006)	(0.005)	(0.008)	(0.011)
	[-46 62]*	[-36 91]*	[_2 34]**	[-0.94]	[-39.07]*	[-29 10]*
15 imports	[ 10.02]	[ 50.91]	[2.51]	[ 0.9 1]	['55.07]	[29.10]
	-15 954	-18 432	0.675	-0.681	-18 326	-16.327
16. exports	(4 667)	(4 619)	(2.60/i)	(2.251)	(5 / 33)	(6.083)
	[-3 42]*	[_3.99]*	[0 26]	[_0 30]	[-3.37]*	[-2.68]*
17 117	[-3.42]	[-3.77]	[0.20]	[-0.50]	[-3.3/]	[-2.00]
1/.111 18 trada balance						
D <sup>2</sup> with in	0.1986	0.2044	0.2553	0.222/	0.1713	0.1426
R WITHIN R <sup>2</sup> between	0.1900	0.2044	0.2335	0.2224	0.1/13	0.1420
Detween D <sup>2</sup> overall	0.30/0	0.4051	0.0220	0.00/5	0.2900	0.2442
E statistic	0.0201	22 60*	1.12	1.20*	1/ 71*	0.2104 9.47*
number of groups	21.00	22.09	1.12	667	2 4/15	0.4/
number of groups	21.046	2,/47	1/1	1 452	2,44)	2,0//
number of cases	21,940	21,940	724	1,432	1/,000	13,038

<sup>1</sup> Standard errors are in parentheses and t-statistics are in brackets.

<sup>2</sup> Variables are included for which data is available for all 13 years. See definitions in Appendix B.

<sup>3</sup> Poor women regressions include working female heads only (cases selected if work=1). \* Confidence 99% or greater. \*\* Confidence 95% or greater. \*\*\* Confidence 90% or greater. \*\*\*\* Confidence 85% or greater.

# Table 3: Income-Needs Regressions for Female Heads, PSID 1981-1993<sup>1</sup> Model with Industry Fixed-Effects and Individual Fixed-Effects Using Measures of Global Exposure by Industry: Intra-Industry Trade<sup>2</sup>

ALL WOMEN			POOR WOMEN <sup>3</sup>		NON-POOR WOMEN <sup>3</sup>	
Independent Variables	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer
	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs
	(1)	(2)	(3)	(4)	(5)	(6)
1. constant	6.146	4.115	1.106	0.549	7.038	7.093
	(0.154)	(0.152)	(0.190)	(0.163)	(0.193)	(0.266)
	[39.96]*	[27.04]*	[5.35]*	[3.36]*	[36.52]*	[26.63]*
2. high school	0.540	0.641	0.023	-0.016	0.610	0.726
	(0.082)	(0.081)	(0.054)	(0.044)	(0.104)	(0.151)
	[6.62]*	[7.94]*	[0.42]	[-0.35]	[5.87]*	[4.80]*
3. college	1.930	2.067	0.045	-0.077	1.961	2.032
	(0.154)	(0.152)	(0.141)	(0.131)	(0.181)	(0.229)
	[12.56]*	[13.59]*	[0.32]	[-0.58]	[10.81]*	[8.89]*
4. work	0.791 (0.130) [6.09]*	1.047 (0.129) [8.15]*	Not Entered3	Not Entered3	0.854 (0.156) [5.46]*	0.866 (0.195) [4.45]*
5. present experience	0.00787	0.00857	0.001	0.0004	0.00740	0.00688
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
	[15.60]*	[17.16]*	[2.20]**	[1.87]***	[12.68]*	[9.62]*
6. years experience	0.0179	0.0116	0.005	0.004	0.0163	0.0262
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.005)
	[6.87]*	[4.49]*	[2.27]**	[2.33]**	[5.28]*	[5.68]*
7. white	1.363	1.131	-0.046	-0.023	1.375	1.325
	(0.141)	(0.139)	(0.082)	(0.073)	(0.174)	(0.217)
	[9.69]*	[8.13]*	[-0.56]	[-0.32]	[7.92]*	[6.10]*
8. kids	-0.311	-0.303	-0.001	-0.041	-0.379	-0.495
	(0.027)	(0.026)	(0.016)	(0.014)	(0.036)	(0.051)
	[-11.65]*	[-11.47]*	[-0.05]	[-3.01]*	[-10.45]*	[-9.71]*
9. dad education	-0.0852	0.141	0.118	-0.073	-0.127	0.279
	(0.159)	(0.158)	(0.134)	(0.111)	(0.186)	(0.218)
	[-0.53]	[0.89]	[0.88]	[-0.65]	[-0.68]	[1.28]
10. mom education	-0.457	-0.108	-0.126	-0.136	-0.433	-0.0309
	(0.170)	(0.168)	(0.131)	(0.120)	(0.198)	(0.239)
	[-2.69]*	[-0.64]	[-0.96]	[-1.13]	[-2.18]**	[-0.13]
11. poor parents	-0.110	-0.257	-0.070	-0.021	-0.0608	-0.359
	(0.081)	(0.080)	(0.048)	(0.042)	(0.102)	(0.135)
	[-1.36]	[-3.21]*	[-1.44]****	[-0.50]	[-0.59]	[-2.66]*
12. unemployment	-0.228	-0.183	-0.019	-0.016	-0.280	-0.290
	(0.011)	(0.011)	(0.009)	(0.007)	(0.014)	(0.018)
	[-20.35]*	[-16.49]*	[-2.07]**	[-2.15]**	[-20.57]*	[-16.46]*
13. moved for job	0.567	0.551	-0.010	0.126	0.572	0.466
	(0.110)	(0.109)	(0.079)	(0.073)	(0.130)	(0.157)
	[5.13]*	[5.04]*	[-0.12]	[1.73]***	[4.43]*	[2.96]*
14. time trend	-0.314	-0.246	-0.014	-0.005	-0.331	-0.326
	(0.007)	(0.007)	(0.006)	(0.005)	(0.008)	(0.011)
	[-46.75]*	[-37.04]*	[-2.37]*	[-1.03]	[-39.20]*	[-29.20]*
15. imports						
10. exports 17. IIT	 -2.977 (0.813) [-3.66]*	 -3.501 (0.804) [-4,35]*	 0.214 (0.480) [0.44]	 0.162 (0.387) [0.42]	 -3.241 (0.925) [-3.50]*	 -3.372 (1.059) [-3.19]*
18. trade balance						
R <sup>2</sup> within	0.1987	0.2046	0.2556	0.2225	0.1714	0.1428
R <sup>2</sup> between	0.3875	0.4027	0.0233	0.0079	0.2969	0.2445
K <sup>2</sup> overall	0.3262	0.3484	0.0705	0.0381	0.2548	0.216/
number of groups	21.09	2.749	471	667	2,445	2,077
number of cases	21,946	21,946	924	1,452	17,888	13,038

<sup>1</sup> Standard errors are in parentheses and t-statistics are in brackets.

<sup>2</sup> Variables are included for which data is available for all 13 years. See definitions in Appendix B.

<sup>3</sup> Poor women regressions include working female heads only (cases selected if work=1). \* Confidence 99% or greater. \*\* Confidence 95% or greater. \*\*\* Confidence 90% or greater. \*\*\*\* Confidence 85% or greater.

# Table 4: Income-Needs Regressions for Female Heads, PSID 1981-1993<sup>1</sup> Model with Industry Fixed-Effects and Individual Fixed-Effects Using Measures of Global Exposure by Industry: Trade Balance<sup>2</sup>

ALL	POOR WOMEN <sup>3</sup>		NON-POOR WOMEN <sup>3</sup>			
Independent Variables	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer	Post-Transfer	Pre-Transfer
	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs	Income/Needs
1. constant	$(1) \\ 6.170 \\ (0.154) \\ [40.14]^*$	(2) 4.142 (0.152) [27.22]*	(3) 1.011 (0.190) [5.34]*	$ \begin{array}{c} (4) \\ 0.545 \\ (0.163) \\ [3.33]^* \end{array} $	7.061 (0.193) [36.64]*	7.121 (0.266) [26.73]*
2. high school	0.544	0.645	0.023	-0.017	0.617	0.737
	(0.082)	(0.081)	(0.054)	(0.044)	(0.104)	(0.151)
	[6.66]*	[7.99]*	[0.43]	[-0.38]	[5.93]*	[4.87]*
3. college	1.939	2.076	0.043	-0.078	1.975	2.053
	(0.154)	(0.152)	(0.141)	(0.131)	(0.181)	(0.229)
	[12.62]*	[13.65]*	[0.30]	[-0.59]	[10.89]*	[8.98]*
4. work	0.785 (0.130) [6.05]*	1.043 (0.129) [8.11]*	Not Entered3	Not Entered3	0.847 (0.156) [5.41]*	0.851 (0.195) [4.37]*
5. present experience	0.00781	0.00850	0.001	0.0004	0.00733	0.00683
	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
	[15.47]*	[17.02]*	[2.18]**	[1.87]***	[12.54]*	[9.55]*
6. years experience	0.0179	0.0116	0.005	0.004	0.0164	0.0263
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.005)
	[6.88]*	[4.51]*	[2.24]**	[2.34]*	[5.30]*	[5.71]*
7. white	1.367	1.136	-0.050	-0.023	1.381	1.334
	(0.141)	(0.139)	(0.081)	(0.073)	(0.174)	(0.217)
	[9.72]*	[8.16]*	[-0.60]	[-0.32]	[7.96]*	[6.14]*
8. kids	-0.307	-0.298	-0.0005	-0.040	-0.373	-0.486
	(0.027)	(0.026)	(0.016)	(0.014)	(0.036)	(0.051)
	[-11.50]*	[-11.30]*	[-0.03]	[-2.89]*	[-10.29]*	[-9.53]*
9. dad education	-0.0912	0.135	0.112	-0.070	-0.132	0.269
	(0.160)	(0.158)	(0.134)	(0.111)	(0.186)	(0.218)
	[-0.57]	[0.86]	[0.83]	[-0.59]	[-0.71]	[1.24]
10. mom education	-0.449	-0.0996	-0.128	-0.136	-0.424	-0.0177
	(0.170)	(0.168)	(0.131)	(0.120)	(0.198)	(0.239)
	[-2.64]*	[-0.59]	[-0.97]	[-1.14]	[-2.14]**	[-0.07]
11. poor parents	-0.116	-0.264	-0.069	-0.023	-0.0693	-0.372
	(0.081)	(0.080)	(0.048)	(0.043)	(0.102)	(0.135)
	[-1.44]****	[-3.30]*	[-1.44]****	[-0.53]	[-0.68]	[-2.75]*
12. unemployment	-0.229	-0.184	-0.018	-0.016	-0.280	-0.291
	(0.011)	(0.011)	(0.009)	(0.007)	(0.014)	(0.018)
	[-20.42]*	[-16.60]*	[-1.98]**	[-2.14]**	[-20.63]*	[-16.52]*
13. moved for job	0.566	0.551	-0.007	0.126	0.571	0.465
	(0.110)	(0.109)	(0.080)	(0.073)	(0.129)	(0.157)
	[5.12]*	[5.04]*	[-0.09]	[1.73]***	[4.42]*	[2.96]*
14. time trend	-0.316	-0.249	-0.014	-0.004	-0.335	-0.331
	(0.007)	(0.007)	(0.006)	(0.005)	(0.008)	(0.011)
	[-47.15]*	[-37.44]*	[-2.36]*	[-0.95]	[-39.56]*	[-29.56]*
15. imports						
10. exports						
18. trade balance	-2.089	-1.756	0.812	0.300	-2.207	-2.165
	(0.717)	(0.710)	(1.249)	(0.393)	(0.814)	(0.922)
	[-2.91]*	[-2.47]*	[0.65]	[0.76]	[-2.71]*	[-2.35]*
R <sup>2</sup> within	0.1985	0.2040	0.2561	0.2230	0.1711	0.1424
R <sup>2</sup> between	0.3865	0.4016	0.0252	0.0078	0.2968	0.2437
R <sup>2</sup> overall	0.3259	0.3479	0.0693	0.0381	0.2546	0.2162
F statistic	21.87*	22.63*	1.13	1.38*	14.69*	8.46*
number of groups	2,/49 21,946	2,749 21,946	924	1,452	17,888	13,038

<sup>1</sup> Standard errors are in parentheses and t-statistics are in brackets.

<sup>2</sup> Variables are included for which data is available for all 13 years. See definitions in Appendix B.

<sup>3</sup> Poor women regressions include working female heads only (cases selected if work=1). \* Confidence 99% or greater. \*\* Confidence 95% or greater. \*\*\* Confidence 90% or greater. \*\*\*\* Confidence 85% or greater.

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Appendix A: Data Definition	for 1981-1993 PSID Analysis.
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Dependent Variables	Definition		
Post-Transfer Income/Needs Ratio	Total family money income (taxable income plus transfers), divided by		
	needs. Needs are based on Census assessment.		
Pre-Transfer Income/Needs Ratio	Taxable family income without transfers, divided by needs. Needs are		
	based on Census assessment.		
Independent Variables	Definition		
2. high school	1 if head has at least a high school education, but is not a college graduate;		
	0 otherwise		
3. college	1 if head is a college graduate; 0 otherwise		
4. work	1 if head is working now; 0 otherwise		
5. present experience	months of experience head has with her present employer		
6. years experience	number of years head has worked full-time during most or all of the year		
7. white	1 if white; 0 otherwise		
8. kids	number of children in head's family unit age 18 and under		
9. father's education	1 if head's father has a college degree; 0 otherwise		
10. mother's education	1 if head's mother has a college degree; 0 otherwise		
11. poor parents	1 if head's parents were poor when head was growing up; 0 otherwise		
12. cnty unemployment	annual average unemployment rate for head's county of residence		
13. moved for job	1 if head has ever moved to take a job; 0 otherwise		
14. time trend	1=1981; 2=1982; 3=1983; 4=1984;; 13=1993		
Global Exposure Measures based o	on Industry in which Head Works		
15. imports	world imports divided by industry shipments in the industry in which head is		
	employed (industry is based on 3-digit SIC code)		
16. exports	world exports divided by industry shipments in the industry in which head is		
	employed (industry is based on 3-digit SIC code)		
17. IIT	intra-industry (bilateral) trade, or overlapping trade, in the industry in which		
	head is employed (industry is based on 3-digit SIC code), defined as:		
	IIT= <u>min (Imports, Exports) x 2</u>		
	(Imports + Exports)		
18. trade balance	trade balance = (exports - imports)/industry shipments, where exports, im-		
	ports and industry shipments are from the industry in which female head is		
	employed (industry is based on 3-digit SIC code)		
	1		

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#### ENDNOTES

- <sup>1</sup> On ethics and economics, see Amartya Sen (1987) and Richard Chewning (1991).
- <sup>2</sup> For a discussion of feminist economics, see Myra Strober (1994), Susan Feiner (1994), Marianne Ferber and Julie Nelson (1993, 2003), Druscilla Barker and Susan Feiner (2004), and Joyce Jacobsen (2007).

For a study describing the status of women in the global economy, see Nancy Riley (1997). For studies of American women and children in poverty, see Harrell Rodgers (1996) and Ann Nichols-Casebolt and Judy Krysik (1995). For an earlier women's status study, see Barbara Bergmann (1986). For a discussion of "gender gaps" which compare male and female earnings differentials, see Steven Pressman (1995) and Francine Blau and Lawrence Kahn (1994). For general poverty literature on the US, see Rebecca Blank (1997), Schiller

(2008), Ehrenreich (2001), Sheldon Danziger, Gary Sandefur and Daniel Weinberg (1994), Danziger and Gottschalk (1993), Dimitri Papadimitriou and Edward Wolff (1993), Haveman (1987, 1988), and Michael Harrington (1962, 1984).

- <sup>4</sup> The OECD is the Organisation for Economic Co-operation and Development, an international organization to assist governments in handling the economic, social and governance challenges of a global economy. For a literature review of cross-national comparisons, see Peter Gottschalk and Timothy Smeeding (1997). For a review of the literature for the United States, see Frank Levy and Richard Murname (1992). See also Adrian Wood (1997), Gary Burtless (1996), Robert Haveman (1996), Klaus Deininger and Lyn Squire (1996), Anthony Atkinson, Lee Rainwater and Timothy Smeeding (1995), Jeffrey Sachs and Howard Shatz (1994).
- <sup>5</sup> The dependent variable used in the empirical analysis is income divided by needs. Use of the word "significant" throughout the paper refers to statistical significance. Heads of households are identified by the household itself in the PSID survey as the primary economic contributor. The PSID is the longest running household survey in the world, and 1981-1993 was an era of increasing globalization and a period where the standard industrial classification (SIC) code was collected for the head of household in the survey, enabling the empirical research in this paper to connect the head of household with her industry of employment.
- <sup>6</sup> See a compelling case study in Susan F. Feiner (1994), article 48 by Theresa Funiciello, entitled "The Poverty Industry: Do Government and Charities Create the Poor?" pp. 294-301, which discusses the changing economic status of single mothers following divorce.
- <sup>7</sup> For an empirical model explaining income for female headed households, see Barbara Wolfe and Steven Hill, "The Health, Earnings Capacity, and Poverty of Single-mother Families," in *Poverty and Prosperity in the USA* in the late twentieth century, edited by Dimitri Papadimitriou and Edward N. Wolff, 1994.
- <sup>8</sup> The Durbin Watson d statistic was used to test for the existence of first-order autoregressive autocorrelation. The Durbin Watson test statistic was found to be in the zone of indecision for the all women and non-poor women regressions, before a time trend was added to the model.
- <sup>9</sup> During the data collection phase of this research, 1993 was the latest wave officially released by PSID. See www.isr.umich.edu/ src/psid/maindata.html.

- <sup>10</sup> 206 unique industries and 2,749 unique individuals are represented by fixed effects in the pooled sample of 21,947 cases in the all women regressions.
- <sup>11</sup> Variable number 4, labeled "work" in Tables 1-4 and Appendix A is a dummy variable that assumes the value 1 if the female head is currently working. The raw data in the PSID sample reveals that poor female heads are relatively unattached to the labor force. In the group of women who are poor before transfers, 14.92 percent work and in the group of women who are poor after transfers, 21.66 percent work. In the all women pooled group, 48.35 percent are working.
- <sup>12</sup> For a discussion of alternative measures of poverty, see Patricia Ruggles (1990).
- <sup>13</sup> There are 206 unique 3-digit SIC industry codes in the sample.
- <sup>14</sup> There are 2,749 unique individuals in the all women pooled sample of 21,947 cases.
- <sup>15</sup> For a detailed discussion of the results of all explanatory factors, see Rebecca A. Havens, "Are American Women Down and Out in a Global Economy?" March 28, 2003.
- <sup>16</sup> Indeed, the raw data confirms that female heads in the PSID sample over 1981-1993 comprise an unskilled labor pool. Only 8.55 percent have a college education, and only half (50.94 percent) have a high school education. That leaves 40.51 percent of the women in this sample with less than a high school education.
- <sup>17</sup> These hypotheses about free trade—that there are only winners and that free trade positively affects individual economic status—are tested in the literature. See Dani Rodrik (1997), Robert Lawrence (1996), David Richardson and Karen Rindell (1995) and David Richardson and Elena Khripounova (1997).
- <sup>18</sup> The raw data in the PSID sample reveals that poor female heads are relatively unattached to the labor force. In the group of women who are poor before transfers, 14.92 percent work and in the group of women who are poor after transfers, 21.66 percent work. In the all women pooled group, 48.35 percent are working.
- <sup>19</sup> A high school education improves the economic status of poor women in general (if all poor women are selected, rather than just working poor women), but a college degree does not impact poor women's incomes. This is because in the PSID pooled sample of female heads for 1981-1993, only 2.09 percent of female heads who were poor before transfers, and 1.58 percent of female heads that were poor after transfers, completed their college education.

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- <sup>20</sup> About 33 percent of the female heads who are poor before transfers, and 30 percent of those who are poor after transfers, are white, in this subgroup of working poor female heads.
- <sup>21</sup> In this sample of working poor female heads, a very small percentage of their parents have a college degree—only about 5 percent of their fathers, and 4 percent of their mothers.
- <sup>22</sup> The PSID pooled sample for 1981-1993 reveals a pool of unskilled female heads. Only 8.55 percent have a college education, and only about half (50.94 percent) have a high school education. Thus, 40.51 percent of female heads have less than a high school education.
- <sup>23</sup> For research by economists on whether globalization contributes to widening income inequality, see Dani Rodrik (1997), Robert Lawrence (1996), and Adrian Wood (1997).
- <sup>24</sup> Psychologist, A. H. Maslow, ranked basic human needs according to their importance in motivating and influencing behavior. The levels of *Maslow's Hierarchy*, are ranked from the lowest, or most basic and necessary needs, to higher order needs. Lower levels must be met before higher order needs can be fulfilled. From lowest to highest, they are: physiological needs, safety needs, belongingness and love needs, esteem needs, and self-actualization needs. This is from A. H. Maslow, *Motivation and Personality*, chapter 5, and referenced in Richard McKenzie and Gordon Tullock, *The Best of the New World of Economics*, pp. 43-44, Figure 3-1.
- <sup>25</sup> See Okun's landmark work, *Equality and Efficiency: The Big Tradeoff* (1975).
- <sup>26</sup> For a full discussion, see Rodrik (1997), pp. 69-85.
- <sup>27</sup> This is one of many cautions against rushing to apply a policy of protectionism when costs of free trade are identified, by Burtless, Lawrence, Litan and Shapiro (1998), p. 8.
- <sup>28</sup> See the article, "Of celebrities, charities and trade," in *The Economist*, June 1, 2002, p. 68. On a tour of Africa with Paul O'Neill, America's treasury secretary, Irish rock star, Bono, comments that the "back-breaking drudgery" of women growing flowers in Uganda "represents 'globalisation at its best.' Everyone benefits: Europeans get roses in winter, and Ugandan rose-growers eat better and put their children through school."
- <sup>29</sup> See an excellent illustration of this in the video documentary, *Hope is a Literate Woman*.

#### ABOUT THE AUTHOR



**Dr. Havens'** desire to participate in the gender issue of the *JBIB* fits her call to serve "the least of these" with her intellectual study. Unfortunately, as her research in women's studies attests, women fall into this marginalized group far too often. Their talents are typically under-utilized

or exploited, even though the qualities women bring to organizations are among those most needed for businesses of the future. Dr. Havens believes that the gender issue of the *JBIB* can highlight the importance of scholarship about women and help CBFA members understand the contemporary discussion in corporate America about the challenges and rewards of recruiting and retaining female talent, and her conviction is that helping women not only honors God, it also serves the greater good.